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實質盈餘管理與後續會計績效之探討–公司治理調解角色之檢測

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摘要

會計文獻指出公司管理者從事實質盈餘管理時，其動機可區分為投機性及非投機性兩類型，本研究預期不同動機之實質盈餘管理對公司後續會計績效的影響應有顯著差異。本文以非平衡性追蹤資料為實證模型，探討公司治理在實質盈餘管理決策中所扮演的角色，透過公司治理觀點以釐清目前實證文獻中，實質盈餘管理對公司後續會計績效影響之不一致的現象。實證結果顯示：平均而言，公司實質盈餘管理行為對後續會計績效有負面影響，在某種程度支持實質盈餘管理投機性假說。然納入公司治理變數後，發現公司治理愈佳者，可有效降低實質盈餘管理之負面影響，而獲致相對較佳的後續會計績效。換言之，當公司治理愈佳時，管理者會謹慎評估使用實質盈餘管理所帶來之成本收益以避免損害公司中長期績效，而存在非投機性實質盈餘管理可能性。進一步分析顯示，在博達案發生之後，非投機性實質盈餘管理對後續會計績效之效果更為明顯。

關鍵詞：公司治理、實質盈餘管理、會計績效、投機性

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Real Earnings Management and Subsequent Accounting Performance: The Moderating Role of Corporate Governance*

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Abstract

Prior studies suggest that there are two motivations for managers' real earnings management, i.e., opportunism versus non-opportunism hypotheses. In light of the findings, this study argues that the two types of real activity earnings management can affect future accounting performance differently. Using unbalanced-panel data, this study examines the moderating role of corporate governance in managerial real earnings management and attempts to address the conflicting evidence about the effect of such behavior on subsequent accounting performance. The result shows that, on average, real earnings management is negatively associated with subsequent accounting performance, supporting the opportunism hypothesis. However, firms with better corporate governance can mitigate this negative relationship and generate higher future accounting performance. In other words, managers of firms with better corporate governance cautiously consider the tradeoffs between the costs and benefits of real earnings management to ensure that the decision would not sacrifice long-term performance, which is in line with the non-opportunistic motivation of real earnings management for firms with better corporate governance. Further analyses show the findings are more pronounced after the PROCOMP scandal.

Keywords: *Corporate governance*, *Real earnings management*, *Accounting performance*, *Opportunism.*

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1. INTRODUCTION

This study examines the moderating role of corporate governance in managerial real activities manipulation on the effect of subsequent accounting performance. Real activities manipulation (e.g., reducing discretionary expenditures, cutting prices to boost sales in the current period, and overproducing to decrease the cost of goods sold expenses) occurs when managers undertake actions that deviate from the first best choice to increase reported earnings (Roychowdhury 2006). While more attention has been focused on the role of the financial reporting process to inflate current earnings, Schipper (1989) indicated that the earnings management could be readily extended to encompass real activities manipulation (hereafter real earnings management). Note that extant real earnings management studies (e.g., Ewert and Wagenhofer 2005; Graham, Harvey and Rajgopal 2005; Leggett, Parsons and Reitenga 2009; Gunny 2010; Eldenburg, Gunny, Hee and Soderstrom 2011; Badertscher 2011; Zhao, Chen, Zhang and Davis 2012; Kim and Sohn 2013) based on developed economic entities reveal mixed results for the association between this strategic behavior and accounting performance. We examine whether earnings reporting through real earnings management affects a firm's subsequent accounting performance using an emerging capital market case, i.e., Taiwan. Particularly, we examine whether corporate governance plays a moderating role in the association between real earnings management and accounting performance.

Real earnings management studies begin by identifying abnormal levels of business activities using an expectation model. Abnormal levels of firms' business activities can reflect either earnings manipulation without economic basis (DeFond and Park 1997) or a signal of anticipated future economic opportunities (Sankar and Subramanyam 2001). A negative association between real earnings management and subsequent accounting performance is consistent with managers using discretion to influence the output of the accounting system for managerial rent extraction (Gunny 2010). A positive association is consistent with managers using discretion to attain benefits that allow a firm to size-adjust and perform better in the future and/or signal future firm value (Burgstahler and Dichev 1997; Gunny 2010). Thus, we have two competing views to describe the association between real earnings management and subsequent accounting performance, i.e., managerial opportunism versus non-opportunism signal (or size adjustment) hypotheses. Inspired by extant literature (e.g., Ewert and Wagenhofer 2005; Graham et al. 2005; Cohen, Dey and Lys 2008; Gunny 2010; Gupta, Pevzner and Seethamraju 2010; among others) provides limited and conflicting evidence on whether real earnings management affects future performance. This study attempts to reconcile the refutation-type evidence on the association between real earnings management and subsequent accounting performance.

A corporate governance mechanism is a framework of legal, institutional, and cultural factors shaping the patterns of influence that stakeholders exert on managerial decision-making (Weimer and Pape 1999). Welker (1995) indicated that corporate governance mechanisms are designed to reduce the agency problem arising from the separation between ownership and management. Adoption of internal corporate governance mechanisms, such as audit committees, non-executive directors, and separation of the roles of chairperson and chief executive, may enhance a firm's monitoring quality in managerial decisions. This is likely to reduce the scope for managerial opportunism and reduce benefits from withholding information, and as a consequence, managerial opportunism reporting behaviors should be constrained. It is expected that better corporate governance is negatively (positively) associated with managerial opportunism (non-opportunism signal or size adjustment) behaviors. We incorporate internal corporate governance as a moderating variable into empirical regression and examine whether such a mechanism plays a role in distinguishing managerial real earnings management motivations. This study conjectures that better corporate governance results in a distinctive pattern of subsequent accounting performance in firms with real earnings management.

We use fixed-effect unbalanced-panel data with a fixed-year effect model to establish the empirical regressions. The results reveal that real earnings management is negatively associated with a firm's subsequent accounting performance and supports the managerial opportunism hypothesis. However, better corporate governance effectively mitigates this negative relationship and reveals a remarkable subsequent accounting performance. This result supports the non-opportunistic explanation of real activities manipulation that is documented by prior studies (i.e., Sankar and Subramanyam 2001; Burgstahler and Dichev 1997; Graham et al. 2005; Gunny 2010; Zhao et al. 2012). Yet, this finding is conditional on a firm's better corporate governance. Further examination reveals the finding is prominent after the occurrence of the PROCOMP event. It suggests that the PROCOMP event made stakeholders more careful in monitoring firms' earnings quality, which in turn, led to their paying closer attention to disentangle managerial real earnings management.

To the best of our knowledge, few studies have focused on examining the role of corporate governance in distinguishing differential incentives embedded in managerial real earnings management[1]. This study extends the very limited research on the association

[1] We note that Osma (2008) and Zhao et al. (2012) have examined the impact of corporate governance on real earnings management. Yet, the significant differences in institutional environments of developed countries (i.e., U.K. and U.S.) do not necessarily hold for emerging markets, e.g., Taiwan. This study differentiates itself from these two studies in several ways. First, Osma (2008) examines a sample prior to 2002 (pre-SOX) in which real activities manipulation is unlikely an important earnings management tool in this period (Cohen et al. 2008; Zang 2012). Our sample period covers the PROCOMP event in Taiwan, a scandal event that may trigger an environment of more real earnings management to replace the accruals-based earnings management and more stringent governance requirements, which in turn, can provide a more powerful setting to test the hypotheses. Second, the above studies focus on one (or a few)

between real earnings management and subsequent accounting performance. We consider the role of corporate governance in examining distinctive real activities manipulation motives to provide some insights in enriching the stream of real earnings management research. From the corporate governance perspective, our findings reveal the potential that an analysis of an earnings management type (opportunistic or non-opportunism signal) can be used to identify a firm's future accounting performance. Secondly, Gunny (2010) finds that real activities manipulation to meet or beat an earnings forecast is associated with higher future performance. Zhao et al. (2012) also document that takeover protection reduces managers' pressure to resort to real earnings management for the purpose of signaling the firm's future superior performance. Yet, other studies (e.g., Bhojraj, Hribar, Picconi and McInnis 2009; Cohen and Zarowin 2010) find a negative association between real activity manipulation and future performance. Therefore, no conclusion about developed capital markets is possible yet. We demonstrate additional evidence on the future performance effect of real earnings management in an emerging market, i.e., Taiwan. This study also reveals that scandal events (i.e., the PROCOMP event) have an effect on the association between real earnings management and subsequent performance that should be of interest to investors. Thirdly, prior studies documented that the listed firms in emerging markets typically have different ownership structures when compared with those in established markets, i.e., with many being family-owned (Claessens, Djankov and Lang 2000) and/or having relatively weak corporate governance (Bekaert and Harvey 2003). The analysis of Taiwan's stock market allows us to improve our understanding of real earnings management in market environments where family-owned firms are widespread and corporate governance is relatively weak.

This paper is organized as follows: Section 2 describes the related prior studies and develops the empirical hypotheses. Section 3 presents the empirical design. Section 4 presents and discusses the empirical results. Section 5 presents the robustness test and Section 6 concludes the study.

2. CHARACTERISTICS, LITERATURE AND HYPOTHESES

2.1 ENVIRONMENTAL CHARACTERISTICS

Managers have a wide range of incentives to manage earnings through real activities. These incentives include meeting the earnings benchmarks, avoiding the violation of debt

dimension(s) of the board and examine how corporate governance affects certain type(s) of real earnings management. The comprehensive measure of corporate governance in this study allows us to consider how the overall strength of governance affects real earnings management. Finally, the above studies do not examine the alternative incentive (i.e., non-opportunism hypothesis) embedded in managerial real earnings management. This study attempts to provide systematic evidence on this under-researched space.

covenants, and obtaining higher compensation payoffs (Graham et al. 2005; Roychowdhury 2006; Cohen et al. 2008; Cohen and Zarowin 2010; Doyle, Jennings and Soliman 2013; Alissa, Bonsall, Koharki and Penn Jr. 2013). Graham et al. (2005) further documented that the certification requirements imposed by the Sarbanes-Oxley Act (SOX) have changed managers' preferences for the mix between taking accounting accruals versus real actions to manage earnings. The enactment of SOX has resulted in the accruals-based earnings management being more likely to draw auditors' or regulators' scrutiny than real activities manipulation. Consequently, it has brought about the latter as an important earnings management tool in the post-SOX period (Cohen et al. 2008; Zang 2012). Although Ewert and Wagenhofer (2005) pointed out that real activities manipulation is likely to be more costly to the firm, extant literature (i.e., Ewert and Wagenhofer 2005; Graham et al. 2005; Cohen et al. 2008; Gunny 2010; Gupta et al. 2010; Badertscher 2011; Eldenburg et al. 2011; Kim and Sohn 2013; Chan et al. 2015) provides conflicting evidence on whether real earnings management affects future performance.

In the emerging market context, Kuo, Ning and Song (2014) revealed that firms' use of discretionary accruals was constrained after the split share structure reform in China, and firms have consequently shifted to less detectable and under-scrutinized real earnings management. The authors argued that this shift is similar to that seen with the direct regulatory changes in reporting rules (i.e., SOX) on firms' earnings behaviors in developed countries. In Korea, Goh, Lee and Lee (2013) documented that real earnings management significantly decreases in the upward earnings management incentive bracket as majority shareholder ownership increases and this relationship is only effective in the post-Asian economic crisis period. They advocate that the economic crisis in Korea helped majority shareholders to become more conscious of the long-term costs of real earnings management and this supports the convergence-of-interests hypothesis in the developed economies (Jensen and Meckling 1976). Hsu, Chen and Chen (2013) found that companies in Taiwan are more likely to use real earnings management when the choice of accruals-based earnings management is restricted. They also found that board characteristics play a role in determining the choice between alternative earnings management methods. Nonetheless, no study has directly examined the economic consequences (i.e., accounting performance) of managerial real activities manipulation decisions in Taiwan.

The listed firms in Taiwan typically have different ownership structures when compared with those in established markets, i.e., with many being family-owned and/or having relatively less institutional ownership (Claessens et al. 2000). Moreover, Taiwan has weak corporate governance, inadequate shareholder protection, a low level of disclosure quality, and heightened stock market volatility (Bekaert and Harvey 2003).

These institutional characteristics provide an adaptive circumstance to breed managerial strategic earnings reporting, such as real earnings management. The effect of real earnings management on the subsequent performance in Taiwanese firms can provide a stronger test of our hypotheses. It should also provide some insights with respect to the firms' earnings reporting behaviors from the corporate governance perspective. Thus, Taiwan is a natural choice for investigating these emerging market issues (Liang, Lin and Chin 2012). This study can provide some insights in enriching both the real earnings management and corporate governance related streams of research.

2.2 RELATED RESEARCH

Increasingly, empirical studies have been examining whether firms engage in real earnings management to artificially enhance their current earnings and have suggested that it does take place (e.g., Bartov 1993; Bushee 1998; Graham et al. 2005; Roychowdhury 2006; Cohen et al. 2008; Krishnan and Visvanathan 2008; Cohen and Zarowin 2010; Seybert 2010; McInnis and Collins 2011; Zang 2012; Burnett, Cripe, Martin and McAllister 2012; Kim and Park 2014; among others). In particular, Graham et al. (2005) and Cohen et al. (2008) both indicated that managers have been more likely to turn toward this type of earnings management in the post-SOX era. Despite the widespread belief that real earnings management may have more severe consequences than accruals-based earnings management (Graham et al. 2005; Cohen and Zarowin 2010), there exists little evidence on this matter in emerging capital markets. Analytically, real earnings management imposes real economic costs to the extent that normal (optimal) business practices maximize firm value. It suggests that these activities have a negative impact on subsequent accounting performance (Ewert and Wagenhofer 2005). Yet, empirical evidence to-date does not fully support this negative relationship and calls for further examinations.

Prior studies have shown that earnings management through accounting accruals is influenced by corporate governance (e.g., Dechow, Sloan and Sweeney 1996; Xie, Davidson and DaDalt 2003). However, there is limited research that has directly examined the relationship between corporate governance and real earnings management. Osma (2008) examined whether independent boards are efficient at detecting and constraining myopic research and development (R&D) cuts. The author indicated that presently more independent boards constrain the manipulation of R&D expenditure. However, there are two motivations for managers' real earnings management, i.e., managerial opportunism versus non-opportunism signal (or size adjustment) hypotheses. It is expected that a good corporate governance mechanism can restrict managerial opportunistic earnings reporting rather than non-opportunism signal (or size adjustment) decisions. It is worth a try to extend this stream of research and to further examine the effect of real earnings

management on subsequent accounting performance from the corporate governance perspective.

Extant studies for the effect of real earnings management on subsequent accounting performance are inconclusive. Gunny (2010) documented that real earnings management is positively associated with firms who are just meeting earnings benchmarks. She argues that this finding is consistent with these firms attaining current-period benefits that allow the firm to perform better in the future or signaling. However, Leggett et al. (2009) found evidence that real earnings management is negatively related to subsequent period returns on assets and cash flows from operations. They attribute prior inconclusive empirical results in part to the estimating of abnormal expenditures with industry-level models. While empirical research for the effect of real earnings management on subsequent accounting performance is conflicting, analytical evidence and market reaction are unambiguous. Ewert and Wagenhofer (2005) made an analytical argument for a decline in subsequent operating performance following real earnings management. Hribar, Jenkins and Johnson (2006) found that the market discounts the real earnings management component of earnings relative to unmanaged earnings when firms use stock repurchases to meet an earnings target. Based on the above discussions, this study focuses on examining the moderating role of corporate governance in the association between real earnings management and subsequent accounting performance. It is expected that the incorporation of corporate governance into the analysis will unravel the ambiguous relationship between current empirical results and the implication of analytical inferences.

2.3 HYPOTHESES

Managers could engage in real earnings management to just meet an earnings benchmark, consequently, having significantly negative impacts on subsequent accounting performances than found in firms only reporting a loss. Some studies (Ewert and Wagenhofer 2005; Cohen et al. 2008; Graham et al. 2005; Hribar et al. 2006; Eldenburg et al. 2011) provide evidence that real earnings management indeed has a negative impact on subsequent accounting performance. A negative association between real earnings management and subsequent accounting performance supports the hypothesis that opportunistic managers use accounting and/or operational discretion to the detriment of shareholders. This study refers to such real earnings management incentive as “managerial opportunism hypothesis”.[2] By undertaking real earnings management as a way to

[2] For example, Badertscher (2011) found that the longer a firm is overvalued the more likely it is to engage in one of the most egregious forms of earnings management, such as non-GAAP earnings management. Eldenburg et al. (2011) found some evidence of real earnings management negatively affecting subsequent operating performance for a group of nonprofit hospitals. Zang (2012) documented that managers often resort to real transactions before turning to accruals to meet or beat earnings targets. Kim and Sohn (2013) showed that the cost of capital is positively associated with the extent of managerial real activities

opportune earnings management, we conjecture that real earnings management will be negatively associated with subsequent accounting performance.

On the other hand, Gunny (2010) suggests that a positive association is consistent with managers using operational discretion to just meet benchmarks in an effort to: (1) attain benefits that allow the firm to perform better in the future or (2) signal future firm value. The former suggests engaging in real earnings management may provide benefits (e.g., avoid debt covenant violations, decrease the cost of debt, maximize stock price, increase management's credibility for meeting the expectations of stakeholders, and avoid litigation) to the firm that enables better performance in the future. The latter suggests that engaging in real earnings management is consistent with signaling managerial competence or future firm performance (Burgstahler and Dichev 1997). This study refers to such real activities' manipulation incentives as the "non-opportunism signal (or size adjustment) hypothesis". Consistent with this non-opportunistic explanation, only managers confident of superior future performance will use real earnings management to size-adjust and/or signal because they expect future earnings growth to outweigh the adverse impact of using real earnings management. By undertaking real earnings management as a way to size-adjust and/or signal superior future earnings, this study conjectures that real earnings management will be positively associated with subsequent accounting performance.

However, the motivation (*opportunism* or *non-opportunism signal*) of firms using real earnings management is unobservable.[3] We conjecture that these two opposing views on how managerial real earnings management is associated with subsequent accounting performance are not mutually exclusive among firms and, on average, are conditional depending on whether the managerial opportunistic effect dominates the non-opportunistic signal (or size adjustment) effect, or *vice versa*. Naturally, we may find that the subsequent accounting performance is possibly not associated with real earnings management if the managerial opportunistic effect is approximately the same as the non-opportunistic signal (or size adjustment) effect. Note that there is no theoretically obvious explanation and/or a dominating empirical conclusion to describe the association between real earnings management and subsequent accounting performance. Thus, we establish the first hypothesis (null hypothesis type) as follows:

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manipulation and supported the opportunism hypothesis. Finally, Chan et al. (2015) found that real activities manipulation temporarily boosts the clawback adopters' short-term profitability and stock performance, yet, this trend reverses after three years and to some extent supports the managerial opportunism perspective.

[3] For example, in a setting of overproduction, Jiambalvo, Noreen and Shevlin (1997) suggest that inventory overproduction on average is not opportunistic, but rather a reflection of firms' inventory build-ups in expectation of higher future sales. However, firms could overproduce opportunistically and not in expectation of future sales, which is implicitly supported by the results in Gupta et al. (2010) who show that inventory growth in excess of sales growth is negatively associated with future earnings.

H1: ***Ceteris paribus*****, real earnings management is not associated with subsequent accounting performance.**

Now, let us turn to discuss whether incorporating internal corporate governance into the model can distinguish real earnings management motives, which in turn, makes a distinction on subsequent accounting performance. Prior studies indicate that corporate governance mechanisms are designed to reduce the agency problem arising from the separation between ownership and management (Welker 1995; Weimer and Pape 1999). This school suggests that better corporate governance is likely to reduce the scope for managerial opportunism and reduce benefits from withholding information. Recently, Garcia-Meca and Sanchez-Ballesta (2009) documented that the consideration of corporate governance as a moderating variable would be very useful in gaining greater understanding of earnings management research. Sharma, Sharma and Ananthanarayanan (2011) examine the moderating role of corporate governance on a firm's strategy or financial reporting and reveal that better corporate governance can effectively place restrictions on managerial opportunistic earnings reporting. If corporate governance plays a moderating role in managerial real earnings management decisions, we conjecture that better corporate governance is negatively associated with managerial opportunism behaviors, which in turn, will mitigate the negative association between real earnings management and subsequent accounting performance. Thus, this study conjectures that better corporate governance firms, when compared with their poorer corporate governance counterparts, will reveal a positive association between real earnings management and subsequent accounting performance. Alternatively, in the non-opportunistic case, it is reasonable to infer that both good and poor corporate governance encourage firms using size adjustment to signal firms having remarkable subsequent accounting performance (a positive association between real earnings management and subsequent accounting performance). Although the moderating role of corporate governance in the association between real earnings management and subsequent performance is unclear in the non-opportunistic case, yet, we can see that better corporate governance will enhance this positive association. From an empirical perspective, on average, it is reasonable to infer that firms with better corporate governance can either effectively mitigate managerial opportunistic behaviors or encourage signal (or size adjustment) to result in a remarkable subsequent accounting performance. From the above discussions, this study therefore establishes the second hypothesis as follows[4]:

[4] We note that better corporate governance will mitigate (enhance or not mitigate) the managerial opportunism (non-opportunism size-adjust/signal) real earnings management in the income-increasing case. Consequently, we will find that better corporate governance reveals a positive association between real earnings management and subsequent accounting performance. Alternatively, in the income-decreasing real earnings management case, there are also two viewpoints to explain the effect of such behavior on a firm's subsequent performance, i.e., conservative reporting vs. size adjustment to signal future prospects. Fortunately, these two hypotheses have both a positive effect on subsequent accounting performance. In

H2: *Ceteris paribus*, compared with poorer corporate governance counterparts, firms with better corporate governance will reveal a positive association between real earnings management and subsequent accounting performance.

3. RESEARCH DESIGN

3.1 VARIABLES MEASUREMENT

3.1.1 Real Earnings Management (*RM*) Measure.

We follow prior studies (i.e., Roychowdhury 2006; Cohen et al. 2008; Krishnan and Visvanathan 2008) to develop the real earnings management measure. We consider three metrics: the abnormal levels of cash flows from operations (*CFO*), discretionary expenditures (*DISCEXP*), and production costs (*PROD*) to study the magnitude of real earnings management. This study first generates the normal magnitudes of *CFO*, expenditures, and production costs using a model developed by Dechow, Kothari and Watts (1998) as adopted in Roychowdhury (2006). We describe normal *CFO* as a linear function of sales and the change in sales and run the following cross-sectional equation for each industry and year:

$$\frac{CFO_{i,\,t}}{Assets_{i,\,t\text{-}1}} = \alpha_1 \frac{1}{Assets_{i,\,t-1}} + \alpha_2 \frac{Sales_{i,\,t}}{Assets_{i,\,t-1}} + \alpha_3 \frac{\Delta Sales_{i,\,t}}{Assets_{i,\,t-1}} + \varepsilon_{i,\,t}. \quad (1)$$

Abnormal *CFO* is actual *CFO* minus the normal magnitude of *CFO* calculated using estimated coefficients from Equation (1).

Secondly, production costs are defined as the sum of the cost of goods sold (*COGS*) and the change in inventory (ΔINV) during the year. This study models *COGS* as a linear function of contemporaneous sales:

$$\frac{COGS_{i,\,t}}{Assets_{i,\,t\text{-}1}} = \alpha_1 \frac{1}{Assets_{i,\,t-1}} + \alpha_2 \frac{Sales_{i,\,t}}{Assets_{i,\,t-1}} + \varepsilon_{i,\,t}. \quad (2)$$

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the conservative reporting school, negative real earnings management is considered to signal downward earnings management. This conservative reporting is a company's attempt to manage its earnings by using accounting reserves. It is expected that conservative real earnings management initiated in the current period will reverse to trigger a better performance in future periods. From the size adjustment viewpoint, after the current downsizing adjustment to attain better operating efficiency in the future, firms that have negative real earnings management enjoy positive subsequent accounting performance. In sum, in the income-decreasing case, better corporate governance will also reveal a positive association between real earnings management and subsequent accounting performance.

Next, we model inventory growth (ΔINV) as a linear function of the contemporaneous and lagged change in sales:

$$\frac{\Delta INV_{i,t}}{Assets_{i,t\text{-}1}} = \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}. \quad (3)$$

Combining Equation (2) and Equation (3), this study estimates the normal magnitude of production costs (*PROD*) as:

$$\frac{PROD_{i,t}}{Assets_{i,t\text{-}1}} = \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{i,t}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \alpha_4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}. \quad (4)$$

Abnormal *PROD* (overproduction costs) is actual *PROD* minus the normal magnitude of *PROD* calculated using estimated coefficients from Equation (4).

Thirdly, since modeling discretionary expenditures as a function of current sales creates a mechanical problem (Cohen and Zarowin 2010), we model the normal magnitude of discretionary expenditures (*DISCEXP*, which is defined as the sum of advertising expenses, R&D expenses, and selling, general and administrative expenses (SG&A) expenses) as a function of lagged sales and describe it as follows:

$$\frac{DISCEXP_{i,t}}{\text{Assets}_{i,t\text{-}1}} = \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}. \quad (5)$$

Abnormal *DISCEXP* is the actual *DISCEXP* minus the normal magnitude of *DISCEXP* calculated using estimated coefficients from Equation (5).

We adopt the above three variables as proxies for real earnings management. Given sales levels, firms that engage earnings moving upwards are likely to have one or all of these: unusually low cash flows from operations, and/or unusually low discretionary expenditures, and/or unusually high production costs. In order to capture all the effects of real earnings management through these three variables in a comprehensive measure, we follow Cohen et al. (2008) and Krishnan and Visvanathan (2008) and compute a single proxy by combining the three real earnings management strategies. In other words, the combined comprehensive measure is the sum of the three standardized variables. Specifically, consistent with Cohen et al. (2008) and Krishnan and Visvanathan (2008), we multiply abnormal *CFO* and abnormal *DISCEXP* by negative one (-1) to capture the large magnitude of abnormal *CFO* and abnormal *DISCEXP*; this method exposes the likelihood that the firm is engaging in sales manipulations through price discounts and cutting discretionary expenditures. Thus, the higher value of real earnings management indicates the likelihood that the firm engaged in aggressive real earnings management.

3.1.2 Corporate Governance Comprehensive Index (*CGCI*) Measure

Instead of looking at one single corporate governance measure in isolation, and to control for the possible substitution effect and/or complementary effect between various corporate governance mechanisms (Bathala and Rao 1995), we follow Bushman, Piotroski and Smith (2004) in constructing a corporate governance comprehensive index (*CGCI*) which includes various firm-level corporate governance characteristics to proxy the strength of corporate governance for a sample firm.[5] We use four variables to measure corporate governance characteristics: (1) outside directors/supervisions on the board; (2) role duality; (3) directors/supervisions belonging to the controlling shareholders; and (4) executive directors/supervisions on the board. The variable of outside directors/supervisions on the board is measured as the percentage of outside individuals, and outside assigned directors/supervisions by the firms/funds on the board. A board with a higher proportion of outside directors/supervisions is more effective in mitigating opportunistic real earnings management (Dechow et al. 1996; Core, Holthausen and Larcker 1999; Xie et al. 2003). The role duality is a dummy variable equal to one if the CEO is not the chairman of the board; otherwise, zero. A chairperson who is not the firm's CEO is expected to be effective in monitoring, thus in turn, in mitigating managerial opportunistic earning reporting (Core et al. 1999). The directors/supervisions belonging to the controlling shareholders are measured as the percentage of directors/supervisions belonging to the controlling shareholders on the board. A board with a higher proportion of controlling shareholder directors/supervisions deteriorates the monitoring function (Yeh, Lee and Woidtke 2001), which in turn, promotes opportunistic real earnings manipulation. The executive director/supervision is measured as the percentage of the executive directors/supervisions on the board. From the agency perspective, the ability of the board to act as an effective monitoring mechanism is dependent upon its independence from management (Dechow et al. 1996; Core et al. 1999). Thus, a board is comprised of executive directors who are employed in the company's business activities, which in turn, cannot be expected to offer shareholders the greatest protection in monitoring managers. When there is a higher proportion of executive directors/supervisions on the board, managers cannot be effectively monitored, and this, in turn, promotes opportunistic real earnings manipulation.[6]

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[5] Yeh, Lee and Ko (2002) summarize the dummy variable of specific corporate governance measures as a corporate governance comprehensive index to construct the *CGCI* variable. Yet, some of these characteristics are interrelated and may have a doubling or tripling effect for some firms in this setting. This study thus uses factor analysis to extract a factor score that represents the *CGCI* variable to control for the possible substitution effect and/or complementary effect between various corporate governance mechanisms.

[6] The TWSE amended Article No.9 of "Taiwan Stock Exchange Corporation Rules Governing Review of Securities Listings" and regulated the independent director appointment rule in the listed firms on February 2002. The independent director variable has been pervasive and available since then. Owing to the need for

Many of these variables to measure governance characteristics are highly correlated with each other, making it difficult to draw conclusions based on a single characteristic or to include multiple characteristics in the same analysis. This study then constructs the corporate governance measure based on a composite factor of these four variables. Namely, we perform the principal factor analysis with an orthogonal rotation to identify the common factor and extract a factor score to measure the *CGCI* variable. Because the fixed-effect panel data with year dummies regressions is used in the empirical analysis, we use a firm's deciles ranking of the *CGCI* measure based on the entire sample and examine the equations. Meanwhile, it implies that the corporate governance comprehensive index is positively associated with better corporate governance of the sample firms.

3.1.3 Control Variables.

This study uses leverage (*LEV*), defined as total liabilities divided by total assets to proxy for default risk. Market-to-book ratio (*MB*) which calculates the ratio of market value of equity to book value of equity is used to proxy for growth opportunities (Leggett et al. 2009). To serve as a control for the potential effects of omitted variables, we include firm size, measured as the logarithm of total assets (*SIZE*) (Becker, DeFond, Jiambalvo and Subramanyam 1998). Other control variables include production capacity which is measured as the ratio of property, plant and equipment divided by current sales (*CAPD*). The effects of agency relationship, which is proxied by the ratio of insiders' stockholdings divided by the total outstanding stocks (*HOLD*), is also included in the regressions (Jensen and Meckling 1976). *ROA* is the industry-adjusted *ROA* which equals the difference between firm-specific *ROA* and the median *ROA* for the same year and the same industry, and is controlled for the time series properties of performance (Gunny 2010). Finally, prior studies (e.g., Cohen et al. 2008; Cohen and Zarowin 2010; Zang 2012) mentioned that companies use both the accruals-based and real activities manipulation to management earnings as substitutes. We thus incorporate the accruals-based earnings management variable into regressions to control for such types of earnings management in the analysis. We estimate the discretionary accruals (*DA*) to proxy the accruals-based earnings management by the prediction error from the cross-sectional Jones modified model of Kothari, Leone and Wasley (2005). The nondiscretionary accruals (*NDA*) are measured by the fitted value of the cross-sectional Jones modified model of Kothari et al. (2005), and are also added in the regression to control for the normal accruals from a firm's operations (Xie 2001).

data consistency in our observation period, this study unavoidably excludes the independent director variable for the corporate governance characteristics measurement.

3.2 MODEL SPECIFICATION

Financial reporting may differ markedly between firms due to unobservable firm-specific traits (Henderson and Kaplan 2000). With panel data analysis, especially as the estimation focuses on within-firm variation, omitted variables bias is avoided, provided it is reasonable to assume that the omitted variable is constant over the time frame of the study. However, the balanced panel analysis requires consistently reported data for every year of the panel; thus, there is the potential for sample attrition and survivorship bias (Henderson and Kaplan 2000). Reasonably, we use unbalanced panel regression which controls for the firm effect in the following examinations. We also control the year effect in all regressions.

To examine whether firms with real earnings management are associated with subsequent accounting performance, we regress the following equation:

$$ROA_{i,\ t+1} = \alpha + \beta_1 RM_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 MB_{i,t} + \beta_5 ROA_{i,t+1} + \beta_6 CAPD_{i,t} + \beta_7 HOLD_{i,t} + \beta_8 DA_{i,t} + \beta_9 NDA_{i,t} + \varepsilon_{i,t}. \quad (6)$$

$ROA_{i,t+1}$ = Industry-adjusted *ROA* in year *t*+1; *ROA* is measured as the ratio of net income before extraordinary items scaled by the total assets at the beginning of the year. The industry-adjusted ROA_{t+1} equals the difference between firm-specific *ROA* and the median *ROA* for the same year and the same industry during year *t*+1.

$RM_{i,t}$ = A firm's real earnings management measure at the end of year *t*.

$SIZE_{i,t}$ = A firm's size at the end of year *t*, which is measured as the logarithm of total assets.

$LEV_{i,t}$ = A firm's leverage at the end of year *t*, which is measured as the ratio of debt divided by total assets.

$MB_{i,t}$ = A firm's market-to-book ratio at the end of year *t*, which is measured as the ratio of market value of equity to book value of equity.

$ROA_{i,t}$ = Industry-adjusted *ROA* in year *t*.

$CAPD_{i,t}$ = A firm's production capacity at the end of year *t*, which is measured as the ratio of net capital expenditures (the net property, plant and equipment, PPE) divided by the current sales at the end of year *t*.

$HOLD_{i,t}$ = A firm's insider ownership, which is measured as insiders' stock holdings divided by the total number of outstanding stocks at the end of year *t*.

$DA_{i,t}$ = The estimated residual value from the industry/year equation based on the cross-sectional Jones modified model of Kothari et al. (2005) in year *t*.

$NDA_{i,t}$ = The estimated fitted value from the industry/year equation based on the cross-sectional Jones modified model of Kothari et al. (2005) in year *t*.

$\varepsilon_{i,t}$ = The error term.

According to hypothesis H1, the coefficient of the *RM* variable (β_1) will be negative (positive) if the managerial opportunism hypothesis (signaling future prospect performance and/or size adjustment) is supported. Naturally, β_1 will be statistically insignificant if the opportunistic effect is traded-off by the non-opportunistic signal (or size adjustment) effect.

Now, let us turn to examine whether incorporating the corporate governance into the model can distinguish real earnings management motivations, which in turn, results in a distinctive subsequent accounting performance. We regress the following equation:

$$\begin{aligned} ROA_{i,t+1} = {} & \alpha + \beta_1 RM_{i,t} + \beta_2 CGCI_{i,t} + \beta_3 RM_{i,t} \times CGCI_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} \\ & + \beta_6 MB_{i,t} + \beta_7 ROA_{i,t} + \beta_8 CAPD_{i,t} + \beta_9 HOLD_{i,t} + \beta_{10} DA_{i,t} + \beta_{11} NDA_{i,t} \\ & + \varepsilon_{i,t}, \end{aligned} \tag{7}$$

where:

$CGCI_{i,t}$ = Corporate governance comprehensive index for the sample firm in year *t*.

The definitions of the remaining variables are the same as in Equation (6).

According to hypothesis H2, the coefficient of β_3 will be positive which will confirm the conjecture that firms with better corporate governance reveal a positive association between real earnings management and subsequent accounting performance.

3.3 DATA AND SAMPLES

We choose 1996~2011 as the sample period. Because the over-the-counter market (OTC) was established in November 1994 in Taiwan and we needed the data from the previous two years to calculate the *RM* measure. Thus, the year 1996 is chosen as the beginning year. The sample firms are composed of publicly traded companies listed on the Taiwan Securities Exchange (TWSE) and OTC in Taiwan. The data are retrieved from the Taiwan Economic Journal (TEJ) Database.

Consistent with extant literature, finance-related institutions (Code 28) are excluded since they are subject to different disclosing requirements. We also exclude observations which are classified into comprehensive industries (Code 99) for their diversified characteristics and those observations for their belonging to regulated industries (Code 97). Shipping (Code 26), Tourism (Code 27), and Merchandise and Trade (Code 29) are also excluded for their non-production attributes. Because there are insufficient sample firms in some industries, except the food (Code 12), spin and fiber (Code 14), and electronics

(Code 23) industries, we follow the study of Chang, Chou and Lin (2003) by combining some similar industries into one integrated industry to obtain larger samples and avoid the inefficiency of real earnings management measure regression coefficients estimating (see Table 1). This study also deletes glass-ceramic, paper, and automobile industries because there are too few listed firms, which would cause trouble in estimating regression coefficients and industrial peculiarities. These selection procedures yield a final sample of 11,246 firm/year observations. Table 1 reports the sample selection process in the study.

Table 1 Sample Selection Procedure and Industry Distribution

Panel A: Sample Selection		
Number of listed/OTC non-financial firms in TEJ database during 1996~2011		18,727
Less: Firms belong to the industries with too few firms to estimate regression coefficients		2,359
Less: Firms with missing data		5,122
Final empirical samples		11,246
Panel B: Sample Composition by Industry	Firms(N)	Percent(%)
Food (12)	329	2.93%
Spin and Fiber (14)	730	6.49%
Electronics, Telecommunications and Software (23)	6,588	58.58%
Electric Machinery and Electric Appliance (15,16)	891	7.92%
Plastics, Rubber and Chemical (13, 21, 17)	1,362	12.11%
Construction and Building Materials (11, 20, 25)	1,346	11.97%
Total	11,246	100.00%

4. EMPIRICAL ANALYSIS

4.1 DESCRIPTIVE STATISTICS

Table 2 provides descriptive statistics of related variables used in the empirical analysis. The mean (median) of adjusted *ROA* for year *t+1* is -0.01 (0.00). The statistics indicate unreasonably large estimates of *RM* measure. We thus winsorize the top and the bottom 0.5% of outliers based on the *RM* variable in the analysis. The winsorized mean (median) of the pivotal variable, *RM*, is -0.06 (-0.05). This negative mean of the *RM* variable suggests, on average, a downward real earnings management in the observation periods. The sample mean (median) of the second pivotal variable, i.e., *CGCI*, is 5.16 (5.00), which reveals the characteristic of our using a firm's deciles ranking of the CGCI measure. Since the standard deviation of variables indicates a somewhat large value, we adopted White's (1980) heteroscedasticity consistent covariance matrix estimator to correct

estimates of the coefficient covariance in the possible presence of heteroscedasticity in all regressions.

Table 2 Descriptive Statistics of the Variables (N=11,246)

	Mean	Standard Deviation	Min	Q1	Median	Q3	Max
ROA_{t+1}	-0.01	0.11	-2.83	-0.05	0.00	0.05	1.21
RM	-0.06	0.29	-1.16	-0.19	-0.05	0.08	1.33
CGCI	5.16	2.82	1.00	3.00	5.00	8.00	10.00
SIZE	6.53	0.57	4.50	6.13	6.46	6.84	9.18
LEV	0.38	0.17	0.01	0.25	0.37	0.49	0.99
MB	1.79	2.72	0.00	1.00	1.00	2.00	193.00
ROA	0.00	0.12	-1.00	-0.05	0.00	0.05	2.96
CAPD	0.19	3.65	-49.30	0.00	0.07	0.23	294.68
HOLD	0.26	0.14	0.00	0.16	0.24	0.34	0.98
DA	0.00	0.11	-0.66	-0.06	0.00	0.05	0.97
NDA	-0.01	0.05	-0.35	-0.04	-0.02	0.01	0.47

Legends:

ROA_{t+1}: A firm's industry-adjusted *ROA* at the end of year *t+1*.*RM*: A firm's real earnings management measure at the end of year *t*. *CGCI*: A firm's corporate governance measure at the end of year *t*. *SIZE*: A firm's size at the end of year *t*, which measured as the logarithm of the total assets. *LEV*: A firm's leverage at the end of year *t*, measured as the ratio of debt divided by total assets. *MB*: A firm's market-to-book ratio at the end of year *t*, measured as the ratio of market value of equity to book value of equity. *ROA*: A firm's industry-adjusted *ROA* in year *t*. *CAPD*: A firm's production capacity in year *t*, which measured as the ratio of property, plant and equipment (*PPE*) divided by the current sales at the end of year *t*. *HOLD*: A firm's insider's stocking holdings, measured as insiders' stockings divided by the total outstanding stocks at the end of year *t*. *DA*: A firm's discretionary accruals at the end of year *t*. *NDA*: A firm's non-discretionary accruals at the end of year *t*.

Table 3 presents the correlations among related variables. It reveals that the *RM* measure is negatively associated with subsequent accounting performance. This preliminary result is consistent with recent studies, e.g., Roychowdhury (2006), Cohen et al. (2008), Cohen and Zarowin (2010) and Zang (2012). The *CGCI* measure is significantly associated with firms' subsequent accounting performance, yet, the Pearson and Spearman correlation coefficient is only -0.03 and -0.05, respectively. While most of the independent variables are highly correlated with others, the variance inflation factors (VIF) of the pivotal interactive variables, i.e., *RM* and *RM*×*CCGI*, in the model are less than 5 and do not suggest severe multi-collinearity problems (Neter, Wasserman and Kutner 1989).

Table 3 Pearson/Spearman Correlation Matrix for Related Variables

	ROA_{t+1}	*RM*	*CGCI*	*SIZE*	*LEV*	*MB*	*ROA*	*CAPD*	*HOLD*	*DA*	*NDA*
ROA_{t+1}		-0.32[a]	-0.03[a]	0.07[a]	-0.19[a]	0.28[a]	0.65[a]	0.00	0.13[a]	0.02	0.35[a]
RM	-0.33[a]		0.10[a]	0.03[a]	0.33[a]	-0.17[a]	-0.38[a]	0.00	-0.04[a]	0.21[a]	-0.08[a]
CGCI	-0.05[a]	0.11[a]		0.35[a]	0.11[a]	-0.10[a]	-0.06[a]	0.02[b]	-0.01	0.01	-0.01
SIZE	0.06[a]	0.02[b]	0.36[a]		0.13[a]	-0.06[a]	0.11[a]	0.01	-0.22[a]	-0.03[a]	-0.01
LEV	-0.21[a]	0.34[a]	0.10[a]	0.17[a]		0.00	-0.26[a]	0.02	-0.04[a]	0.01	-0.06[a]
MB	0.38[a]	-0.28[a]	-0.20[a]	-0.05[a]	-0.11[a]		0.25[a]	-0.01	0.08[a]	0.01	0.21[a]
ROA	0.70[a]	-0.39[a]	-0.09[a]	0.09[a]	-0.26[a]	0.48[a]		0.00	0.13[a]	0.06[a]	0.54[a]
CAPD	-0.02[b]	-0.12[a]	-0.03[a]	-0.01	0.06[a]	0.02	0.00		-0.01	0.01	-0.01
HOLD	0.14[a]	-0.05[a]	-0.03[a]	-0.27[a]	-0.04[a]	0.12[a]	0.15[a]	-0.01		-0.02	0.13[a]
DA	-0.02	0.20[a]	0.01	-0.02	0.02	-0.02	0.01	0.07[a]	-0.02		0.02
NDA	0.34[a]	-0.10[a]	0.00	0.00	-0.05[a]	0.39[a]	0.50[a]	-0.12[a]	0.15[a]	-0.05[a]	

Legends:
1. Variables are defined in Table 2.
2."a" and "b" denote the significance on the 1% and 5%levels respectively, based on two-tailed tests.
3. The upper triangular of matrix presents Pearson correlation coefficients, and the lower triangular of matrix presents Spearman correlation coefficients.

4.2 EMPIRICAL RESULTS

The estimation process of the present study begins with the least-squares regression of the pooled data followed by an assessment of the validity of the pooled model's assumption of a single, overall intercept term. The Lagrange Multiplier Statistic (LM test) rejects the pooled model (implying heterogeneous intercept), thus, the panel data model, as conjectured, offers a more powerful approach. Subsequently, the estimation proceeds to panel data analysis and a choice between the fixed effect and the random effect. The Hausman specification test (Hausman 1978) reveals the potential for omitted variables bias and the importance of firm-specific effects in the models. Thus, we anticipate the need to use the fixed-effect approach to examine whether a firm's corporate governance plays an important role in distinguishing managerial distinctive real earnings management motives, which in turn, makes a distinction for subsequent accounting performance.

This study firstly examines whether firms with real earnings management are associated with subsequent accounting performance. The empirical results are reported in the "*RM* model" in Table 4. From Table 4, the adjusted R^2 is 54.29 % in the *RM* model and indicates the fitness of the model specification. It is found that the coefficient of *RM* is -0.013 (t=-2.60), negative and statistically significant at the 1% level. This result is consistent with the opportunistic motives and suggests that, on average, firms with real earnings management are associated with lower subsequent accounting performance. It provides this study with a preliminary support to use corporate governance as a moderating variable in the empirical regression and examines whether a firm's corporate governance

plays an important role in mitigating managerial opportunistic real manipulation activities, which in turn, results in a benefit for subsequent accounting performance.

Table 4 Regression Results for the RM on Subsequent Accounting Performance

$$ROA_{i,t+1} = \alpha + \beta_1 RM_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 MB_{i,t} + \beta_5 ROA_{i,t} + \beta_6 CAPD_{i,t} + \beta_7 HOLD_{i,t} + \beta_8 DA_{i,t} + \beta_9 NDA_{i,t} + \varepsilon_{i,t}. \quad (6)$$

$$ROA_{i,t+1} = \alpha + \beta_1 RM_{i,t} + \beta_2 CGCI_{i,t} + \beta_3 RM_{i,t} \times CGCI_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 MB_{i,t} + \beta_7 ROA_{i,t} + \beta_8 CAPD_{i,t} + \beta_9 HOLD_{i,t} + \beta_{10} DA_{i,t} + \beta_{11} NDA_{i,t} + \varepsilon_{i,t}. \quad (7)$$

	Dependent Variable: ROA_{t+1}	
	RM Model	*RM*/*CGCI* Model
Variables	Coefficients (*t*-value)	Coefficients (*t*-value)
Constant	0.498*** (*t*=4.88)	0.501*** (*t*=4.89)
RM	-0.013*** (*t*=-2.60)	-0.033*** (*t*=-3.42)
CGCI	---	0.001 (*t*=1.10)
RM×*CGCI*	---	0.004*** (*t*=2.82)
SIZE	-0.083*** (*t*=-5.26)	-0.084*** (*t*=-5.31)
LEV	0.022 (*t*=1.62)	0.022 (*t*=1.62)
MB	0.008*** (*t*=8.07)	0.007*** (*t*=7.97)
ROA	0.302*** (*t*=8.22)	0.301*** (*t*=8.20)
CAPD	0.000 (*t*=-0.58)	0.000 (*t*=-0.58)
HOLD	0.058*** (*t*=4.63)	0.057*** (*t*=4.78)
DA	0.009 (*t*=0.74)	0.009 (*t*=0.76)
NDA	0.075** (*t*=1.96)	0.074** (*t*=1.97)
N	11,246	11,246
Adjusted R^2	54.29%	54.33%
F-statistic	12.30***	12.30***
Hausman test	2532.67***	2545.40***

Legends:
1. Variables are defined in Table 2.
2. "***", "**" and "*" denote the significance on 1%, 5%, and 10% levels respectively, based on two-tailed tests.

Incorporating the role of corporate governance into consideration, the empirical results are reported in the "*RM/CGCI* model" in Table 4. From Table 4, the coefficient of *RM* is -0.033 (*t*=-3.42), negative and statistically significant at the 1% level. It suggests that, on average, the poor corporate governance firms with real earnings management are associated with lower subsequent accounting performance. The coefficient of *CGCI* is 0.001 (*t*=1.10), positive yet statistically insignificant. However, the coefficient of *RM*× *CCGI* is 0.004 (*t*=2.82), positive and statistically significant at the 1% level.[7] This result indicates that better corporate governance effectively mitigates the negative effect of real earnings management on subsequent accounting performance and supports hypothesis H2.[8]

The coefficient of *MB* is positive and statistically significant in the regressions, which reveals that high growth opportunity is associated with better subsequent accounting performance. The coefficient of *HOLD* is positive and statistically significant at the 1% level and suggests that low agency cost is positively associated with a firm's subsequent accounting performance. We also find that the coefficients of *SIZE*, *ROA* and *NDA* are all significantly associated with subsequent accounting performance, which indicates the need to control for these variables in the empirical model. Although we had used leverage (*LEV*) in the regression to control a firm's default risk, yet, financial health may affect firms' future performance. This study thus incorporates a financial health variable (Z-score) which is suggested by Zang (2012) into Equation (7) and reruns the model. The untabulated results reveal that the coefficient of *RM*×*CCGI* is 0.004 (*t*=3.01), positive and statistically significant. It is unlikely that adding the financial health variable into the equation qualitatively changes the primary results.[9]

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[7] We ran the *RM* variable non-winsorized regression. The coefficient of *RM*×*CGCI* is 0.003 (*t*=2.05), positive and statistically significant at the 5% level. This result supports the initial findings.

[8] The empirical results reveal non-linear impacts of corporate governance on firms' real earnings management associated with subsequent accounting performance. This study thus accumulates the ten subsamples step by step based on the corporate governance measure and reruns Regression (7). This procedure allows this study to identify two reversal points, i.e., *CGCI*=0.3 and *CGCI*=0.9 in the relationship between real earnings management and subsequent performance. The untabulated results reveal that the coefficient of *RM*×*CGCI* is -0.015 (*t*=-2.28), negative and statistically significant at the 5% level when *CGCI* < 0.4. On the other hand, the coefficient of *RM*×*CGCI* is 0.003 (*t*=2.30), positive and statistically significant at the 5% level when *CGCI*>0.9. The coefficients of *RM*×*CGCI* are all statistically insignificant in the remaining *CGCI* intervals.

[9] The control variables reveal some outliers in the samples. We thus winsorize the top and the bottom 0.5% observations of all control variables and rerun Equations (6) and (7). In the *RM* model, the coefficient of *RM* is -0.007 (*t*=-2.05), negative and statistically significant at the 5% level. The coefficient of *RM*×*CGCI* is 0.003 (*t*=2.46) in the *RM/CGCI* model, positive and statistically significant at the 5% level. It seems fair to conclude the empirical findings are robust to the outlier consideration.

4.3 THE IMPACTS OF THE 2004 PROCOMP EVENT

The PROCOMP scandal in June 2004 aroused public awareness of managerial fraud and deception in financial reporting. The PROCOMP event could have a significant impact on managerial earnings reporting, which, in turn, may change managerial real earnings management and/or investors' perceptions about managerial strategic earnings reporting. If the PROCOMP event did make stakeholders more careful in monitoring firms' earnings quality, we conjecture that stakeholders will pay close attention in order to disentangle managerial real earnings management. Consequently, we further examine whether the PROCOMP event had a significant impact on the corporate governance role in distinguishing managerial real earnings management motives, and, in turn, for subsequent accounting performance. We divide the entire observation period into two mutually exclusive sub-periods, i.e., pre- (1996~2004) vs. post-PROCOMP (2005-2011) and rerun the equations. If the PROCOMP event had an impact on the association between real earnings management and subsequent accounting performance by way of corporate governance, we conjecture firms with better corporate governance would be more cautious with real earnings management after the occurrence of the PROCOMP event. The empirical results are presented in Table 5.

In the "Pre-PROCOMP Model" of Table 5, the coefficients of *RM* and *RM*×*CGCI* are -0.009 (t=-0.69) and 0.003 (t=1.59), both statistically insignificant. These results suggest that real earnings management and the interactive variable of *RM*×*CGCI* are unlikely to have been associated with subsequent accounting performance before the PROCOMP event. Yet, in the "Post-PROCOMP Model", the coefficients of *RM* and *RM*×*CGCI* are -0.037 (t=-3.78) and 0.005 (t=5.51), both statistically significant in the post-PROCOMP period. These results suggest that, after the PROCOMP event, corporate governance has played a more cautious role in a firm's real earnings management, which in turn, has mitigated managerial opportunistic behaviors. Thus, these results reveal that the empirical finding is significant after the occurrence of the PROCOMP event.

We also compare the difference between the coefficients between the pre- and post-PROCOMP subsamples in Table 5. The coefficients' difference of *RM* and *DA* in the pre- and post-PROCOMP subsamples are -0.028 (t=-1.72) and 0.048 (t=3.22), both statistically significant. These results support the supposition that managerial earnings reporting, without considering the role of corporate governance, changed after the occurrence of the PROCOMP event. Consequently, the increasing (decreasing) opportunistic real earnings management (accruals-based earnings management) in the post-PROCOMP period resulted in distinctive effects on subsequent accounting performances. The coefficients' difference of *CGCI* in the pre- and post-PROCOMP subsamples is 0.002 (t=1.20), which is statistically insignificant. It suggests that the effect

of *CGCI* on a firm's subsequent accounting performance did not change after the occurrence of PROCOMP. The similar coefficients of *RM*×*CGCI*, again, suggest the monitoring role of corporate governance on subsequent accounting performance for firms with *RM* has not changed in the post-PROCOMP period. Meanwhile, the coefficients' difference of insiders' stockholdings (*HOLD*) is 0.109 (*t*=5.13) and reveals that the positive effect of agency relationship (i.e., high insider ownership reduces agency costs) on a firm's subsequent accounting performance is more prominent after the PROCOMP event. It is interesting to find that the coefficients' difference of production capacity (*CAPD*) is 0.001 (*t*=3.22) and statistically significant. It reveals the negative effect of net capital expenditures on a firm's subsequent accounting performance, to some extent, resulted from managerial overinvestment in the pre-PROCOMP period, which is mitigated after the PROCOMP event. Note that the post-PROCOMP period includes the global financial crisis that occurred in 2008. It is likely the global financial crisis resulted in managers' more prudent investing plans, which in turn, effectively averted the firms from making unfavorable investments.

We note that the global financial crisis represents a relatively exogenous shock that significantly impacted firms' operating abilities and may have influenced their managerial real earnings management decisions. The crisis was characterized by the drying up of liquidity in the banking system (Ivashina and Scharfstein 2010) and represented a situation in which most firms were likely to suffer underinvestment. Thus, the demand of capacity and/or size adjustment through real activities to reflect the unfavorable financial constraints increased after the occurrence of the global financial crisis. Consequently, we further examine whether the crisis had a significant impact on the corporate governance role in distinguishing managerial real earnings management motivations, and, in turn, for subsequent accounting performance. This study divides the post-PROCOMP (2005-2011) into two mutually exclusive sub-periods, i.e., pre-crisis (2005~2007) versus post-crisis (2008~2011) and reruns the equations. The untabulated results reveal that the coefficients of *RM* are -0.030 (*t*=-4.96) and -0.047 (*t*=-1.77), in the pre- and post-crisis. The coefficients of *RM*×*CGCI* are 0.005 (*t*=4.72) and 0.009 (*t*=4.57), both statistically significant in the pre- and post-crisis. It is fair to conclude that the global financial crisis did not change the primary results.

In sum, the results from Table 5 suggest that corporate governance mitigates the negative association between real earnings management and subsequent accounting performance after the occurrence of the PROCOMP event, but not before the PROCOMP period. Nonetheless, these additional results also support the hypothesis that better corporate governance mitigates the negative association between real earnings management and subsequent performance.

Table 5 Regression Results for the RM on Subsequent Accounting Performance ---The PROCOMP Event Examination

$$ROA_{i,t+1} = \alpha + \beta_1 RM_{i,t} + \beta_2 CGCI_{i,t} + \beta_3 RM_{i,t} \times CGCI_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 MB_{i,t} + \beta_7 ROA_{i,t} + \beta_8 CAPD_{i,t} + \beta_9 HOLD_{i,t} + \beta_{10} DA_{i,t} + \beta_{11} NDA_{i,t} + \varepsilon_{i,t}. \quad (7)$$

	Dependent Variable: ROA_{t+1}		
	Pre-PROCOMP	Post-PROCOMP	Coefficient Difference
Variables	Coefficients (t-value)	Coefficients (t-value)	Coefficients (t-value)
Constant	0.857***	0.857***	0.000
	(t=6.72)	(t=4.43)	(t=0.00)
RM	-0.009	-0.037***	-0.028*
	(t=-0.69)	(t=-3.78)	(t=-1.72)
CGCI	-0.000	0.001	0.001
	(t=-0.29)	(t=1.44)	(t=1.20)
RM×*CGCI*	0.003	0.005***	0.002
	(t=1.59)	(t=5.51)	(t=1.33)
SIZE	-0.137***	-0.144***	-0.007
	(t=-6.85)	(t=-4.65)	(t=-0.19)
LEV	0.028	0.055**	0.027
	(t=0.90)	(t=1.99)	(t=0.64)
MB	0.011***	0.008***	-0.003
	(t=5.16)	(t=7.69)	(t=-1.53)
ROA	0.180***	0.168**	-0.011
	(t=3.67)	(t=2.10)	(t=-0.12)
CAPD	-0.001***	0.000	0.001***
	(t=-4.03)	(t=0.04)	(t=3.22)
HOLD	0.021	0.130***	0.109***
	(t=1.58)	(t=7.96)	(t=5.13)
DA	-0.006	0.042***	0.048***
	(t=-0.56)	(t=4.15)	(t=3.22)
NDA	0.060	0.047	-0.013
	(t=1.19)	(t=0.56)	(t=-0.13)
N	4,837	6,409	---
Adjusted R^2	59.90%	58.52%	---
F-statistic	8.31***	8.72***	---
Hausman test	1327.60***	2338.83***	---

Legends:
1. Variables are defined in Table 2.
2. "***", "**" and "*" denote the significance on 1%, 5%, and 10% levels respectively, based on two-tailed tests.

5. ROBUSTNESS TESTS

5.1 POOLED CROSS-SECTIONAL REGRESSION EXAMINATIONS

To gain confirmatory results to support our findings, we further use the pooled cross-sectional data with year dummies and reexamine the regressions. The extracted results are denoted as "Model (1)" and presented in Panel A of Table 6. In the pooled cross-sectional analysis, the coefficient of *RM* and *RM*×*CCGI* is -0.044 (t=-5.02) and 0.003 (t=2.09), statistically significant at the 1% level and 5% level, respectively. The

untabulated results revealed that the coefficients of *RM* are negative and the *RM*×*CGCI* are positive, both statistically significant in the pre- and post-PROCOMP periods. These results are approximately the same as the initial empirical findings.[10]

5.2 NEGATIVE *RM* CONSIDERATION

Note that managerial strategic earnings reporting can involve either income-increasing (aggressive earnings reporting) or income-decreasing (conservative earnings reporting) real activities manipulation. We thus further control the downward earnings reporting in the analysis. We define a dummy variable for the income-decreasing real earnings management (*D_NRM*) which equals 1 if the *RM* is negative and 0 otherwise. Then, we expand Equation (7) by incorporating the *D_NRM* variable and the interactive variable of *D_NRM*×*RM*×*CGCI* into the model. The equation is presented as follows:

$$\begin{aligned} ROA_{i,t+1} = {} & \alpha + \beta_1 RM_{i,t} + \beta_2 CGCI_{i,t} + \beta_3 RM_{i,t} \times CGCI_{i,t} + \beta_4 D\_NRM_{i,t} \\ & + \beta_5 D\_NRM_{i,t} \times RM_{i,t} \times CGCI_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 LEV_{i,t} + \beta_8 MB_{i,t} \\ & + \beta_9 ROA_{i,t} + \beta_{10} CAPD_{i,t} + \beta_{11} HOLD_{i,t} + \beta_{12} DA_{i,t} + \beta_{13} NDA_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{8}$$

The further results are denoted as "Model (2)" and presented in Panel A of Table 6. The coefficient of *RM* and *RM*×*CCGI* is -0.030 (*t*=-3.07) and 0.005 (*t*=2.08), both statistically significant. The coefficient of *D_NRM*×*RM*×*CGCI* is statistically insignificant. The untabulated results, as expected, again revealed that the coefficients of *RM* and *RM*× *CGCI* are statistically significant in the post-PROCOMP period, yet, statistically insignificant in the pre-PROCOMP period. This study also divides the entire sample based on the *CGCI* measure into two mutually exclusive sub-samples, i.e., high *CGCI* (*CGCI*>0.5) and low *CGCI* (*CGCI*<=0.5), and rerun an alternative equation.[11] It is found that the coefficient of *RM* in the low *CGCI* sub-sample is negative and statistically significant. The coefficients of *RM*×*DNRM* are statistically insignificant in all models. In addition, we directly divide the entire sample into four subsamples, i.e., high *CGCI* with upward *RM*, low *CGCI* with upward *RM*, high *CGCI* with downward *RM*, low CGCI with downward *RM*, and examine the association between real earnings management and subsequent performance. The coefficient of *RM* in the low *CGCI* with upward real earnings management sub-sample is negative and statistically significant. The coefficient of *RM* in the high *CGCI* with upward real earnings management sub-sample is positive, yet, statistically insignificant.

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[10] It is found that the electronics industry sample dominates approximately 59% of the sample. This study includes a dummy variable for the specific industry in this cross-sectional model with year dummies and reexamines the equation. The results are approximately the same as the initial findings after controlling for a possible industrial effect.

[11] The regression is denoted as follows:

$$\begin{aligned} ROA_{i,t+1} = {} & \alpha + \beta_1 RM_{i,t} + \beta_2 DNRM_{i,t} + \beta_3 RM_{i,t} \times DNRM_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 MB_{i,t} + \beta_7 ROA_{i,t} + {}_8 CAPD_{i,t} + \beta_9 HOLD_{i,t} \\ & + \beta_{10} DA_{i,t} + \beta_{11} NDA_{i,t} + \varepsilon_{i,t}. \end{aligned}$$

Table 6 Regression Results for the *RM* on Subsequent Accounting Performance ---Robustness Tests

Variables	Coefficients (*t*-value)	Coefficients (*t*-value)	Coefficients (*t*-value)	Coefficients (*t*-value)
Panel A: Cross-sectional Data (Model 1), Negative *RM* Considerations (Model 2) and The Subsequent Two/Three Years Examinations (Models 3/4)				
	Model (1)	Model (2)	Model (3)	Model (4)
RM	-0.044***	-0.030***	-0.028***	-0.016*
	(*t*=-5.02)	(*t*=-3.07)	(*t*=-3.01)	(*t*=-1.78)
CGCI	0.001**	0.000	0.000	0.000
	(*t*=2.33)	(*t*=0.81)	(*t*=0.75)	(*t*=0.61)
RM×*CGCI*	0.003**	0.005**	0.003**	0.002*
	(*t*=2.09)	(*t*=2.08)	(*t*=2.24)	(*t*=1.81)
Panel B: Alternative *CGCI* Measure (Model 5) and Informativeness (Model 6) Tests				
	Model (5)		Model (6)—*AR* Model	
RM	-0.020***		-0.099*	
	(*t*=-3.13)		(*t*=-1.75)	
D_CGCI (or *CGCI*)	0.003		-0.002	
	(*t*=1.33)		(*t*=-0.93)	
RM×*D_CGCI* (or *RM*×*CGCI*)	0.015**		0.021**	
	(*t*=2.30)		(*t*=2.15)	
Panel C: The Motivations of *RM* Examination (Model 7)				
	Pre-PROCOMP	Post-PROCOMP	Coefficient Difference	
RM	-0.008	-0.034***	-0.026	
	(*t*=-0.56)	(*t*=-3.20)	(*t*=-1.39)	
BENCH	-0.007	-0.009**	-0.002	
	(*t*=-0.92)	(*t*=-2.27)	(*t*=-0.25)	
RM×*BENCH*	-0.004	-0.043*	-0.039	
	(*t*=-0.10)	(*t*=-1.92)	(*t*=-0.93)	
CGCI	-0.000	0.001	0.001	
	(*t*=-0.34)	(*t*=1.19)	(*t*=1.05)	
CGCI×*BENCH*	0.000	0.002***	0.002	
	(*t*=0.37)	(*t*=2.95)	(*t*=1.05)	
RM×*CGCI*	0.003	0.005***	0.002	
	(*t*=1.23)	(*t*=4.66)	(*t*=0.86)	
RM×*CGCI*×*BENCH*	0.001	0.008**	0.007	
	(*t*=0.09)	(*t*=2.38)	(*t*=1.06)	
Panel D: Alternative *RM* Measure Examinations (Model 8)				
	Excluded *CFO RM*	Percentage *RM*	Excluded *PROD RM*	
RM (or *PRM*)	-0.029**	-0.030***	-0.056***	
	(*t*=-2.21)	(*t*=-3.49)	(*t*=-3.13)	
CGCI	0.001	-0.001	0.001	
	(*t*=0.97)	(*t*=-1.18)	(*t*=0.92)	
RM×*CGCI* (or *PRM* ×*CGCI*)	0.004**	0.002**	0.006**	
	(*t*=2.14)	(*t*=2.12)	(*t*=2.30)	

Legends:

1. *D_CGCI*: The dummy variable for *CGCI*, *D_CGCI* is denoted as one if *CGCI* is larger than the median of *CGCI* in the firm/year and 0 otherwise. *BENCH*: Firms that are suspected for engaging in *RM* to just meet zero earnings or last year's earnings as firm/years that fall within either 0.01 interval for year *t*. *PRM*: The percentage rank of *RM* in the firm/year. The remaining variables are defined in Table 2.
2. "***", "**" and "*" denote the significance on 1%, 5%, and 10% levels respectively, based on two-tailed tests.

These results are consistent with our initial findings, i.e., a poor corporate governance firm's real earnings management is negatively associated with subsequent accounting performance and supports the opportunism hypothesis. Yet, better corporate governance effectively mitigates this negative relationship. Based on the above further tests, the results do not qualitatively change the primary findings.

Gunny (2010) found that firms' real activities manipulation which influenced their future performance is not limited to one year. We thus use the subsequent two years and the subsequent three years average performances (i.e., ROA_{t+2} and ROA_{t+3}) as an alternative dependent variable to measure firms' future performances and rerun Equation (7). The extracted results are denoted as "Model 3" and "Model 4" and reported in Panel A of Table 6. It reveals that the coefficients of *RM* and *RM*×*CGCI* are negative and positive, respectively, both statistically significant in the two years and the three years average performance models. Tests for the pre- and post-PROCOMP periods also do not qualitatively change the initial findings. The results support the conjecture that a firm with better corporate governance exhibits a positive association between managerial real earnings management and subsequent performance; yet, this association is significant in the post-PROCOMP period.

5.3 ALTERNATIVE CGCI MEASURE EXAMINATIONS

This study uses the principal factor analysis and the deciles ranking of the *CGCI* variable to measure a firm's internal corporate governance. A potential concern is whether the deciles ranking of the *CGCI* variable measure can reflect the strength of corporate governance for a sample firm. We thus place the dummy variable *D_CGCI* into Equation (7) to replace the deciles ranking *CGCI* variable and rerun the equations. The *D_CGCI* variable is denoted as 1 if *CGCI* is larger than the median of *CGCI* in the firm/year and 0 otherwise. From "Model (5)" in Panel B of Table 6, the coefficients of *RM* and *RM*× *D_CGCI* are -0.020 (t=-3.13) and 0.015 (t=2.30); both are statistically significant. The untabulated results reveal the same patterns in the post-PROCOMP period. Yet, the coefficients of *RM* and *RM*×*CGCI* are statistically insignificant in the pre-PROCOMP period. This diagnostic check again demonstrates that the results are robust with respect to the alternative measure of corporate governance.

5.4 THE EARNINGS INFORMATIVENESS OF *RM* AND *CGCI*

If a firm's real earnings management, accompanied with better corporate governance, makes earnings more informative, returns should provide more information about current earnings. This study thus examines the extent to which a firm with better corporate governance improves the informativeness of real earnings management. We use the *AR*

variable to replace the initial *ROA* variable as the dependent variable and rerun Equation (7). The *AR* variable is the industry-adjusted stock return for the sample firm in year *t*. The results are reported in Panel B of Table 6 and denoted as "Model (6)". From Table 6, the coefficients of *RM* and $RM \times CCGI$ are -0.099 (t=-1.75) and 0.021 (t=2.15), both statistically significant. These results illustrate that a firm with better corporate governance enhances the informative components of earnings with real earnings management. The untabulated results also reveal that the coefficient of $RM \times CGCI$ is positive and statistically significant in the post-PROCOMP period. Thus, the earnings informativeness of real earnings management for firms with better corporate governance is greater after the occurrence of PROCOMP.

5.5 MANAGERIAL INCENTIVES EXAMINATION

Prior studies (i.e. Burgstahler and Dichev 1997; Degeorge, Patel and Zeckhauser 1999; Roychowdhury 2006; Zang 2012) document a discontinuity around zero earnings and/or the previous year's earnings and suggest these as evidence of earnings management by firms to just meet or slightly beat salient earnings benchmarks. Recently, Gunny (2010), Bhojraj et al. (2009) and Doyle et al. (2013) looked at the use of real earnings management to beat benchmarks. This study thus incorporates the benchmark indicator variable into the models and reruns the regressions to determine whether the empirical results are affected by managerial incentives.

Firstly, we perform a primary test to find out whether managers engage in real activities manipulation to meet or slightly beat salient earnings benchmark. We group firm-years into intervals based on net income scaled by total assets at the beginning of the year and concentrate on firm-years in the interval to the immediate right of zero (Roychowdhury 2006). We denote the real earnings management sample (*BENCH*) as firms that meet or just beat the two earnings benchmarks (zero earnings, previous year's earnings) within a 1% interval. It is expected that the magnitude of the aggressive real earnings management measure in the "*BENCH*" is larger than the remaining "Non-BENCH" samples to reflect managerial earnings management. This study uses the real earnings management model suggested by Roychowdhury (2006, p.349, Reg. (6)) to examine whether the "*BENCH*" samples have significantly higher real earnings management. The untabulated results reveal that the coefficients of the *BENCH* variable are 0.036 (t=3.49), 0.036 (t=4.36), and 0.031 (t=2.13) in the entire, pre- and post-PROCOMP period, respectively. These results provide preliminary evidence to support the conjecture that managers engage in real activities manipulation in their earnings reporting.

Secondly, we run the following regression to examine the association between firms just beating/meeting earnings benchmarks and subsequent accounting performance:

$$\begin{aligned} ROA_{i,t+1} = {} & \alpha + \beta_1 RM_{i,t} + \beta_2 BENCH_{i,t} + \beta_3 RM_{i,t} \times BENCH_{i,t} + \beta_4 CGCI_{i,t} \\ & + \beta_5 CGCI_{i,t} \times BENCH_{i,t} + \beta_6 RM_{i,t} \times CGCI_{i,t} + \beta_7 RM_{i,t} \times CGCI_{i,t} \times BENCH_{i,t} \\ & + \beta_8 SIZE_{i,t} + \beta_9 LEV_{i,t} + \beta_{10} MB_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12} CAPD_{i,t} + \beta_{13} HOLD_{i,t} \\ & + \beta_{14} DA_{i,t} + \beta_{15} NDA_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{9}$$

where:

$BENCH_{i,t}$ = The dummy variable for firms that meet or just beat the two earnings benchmarks (zero earnings, previous year's earnings) within a 1% interval. A firm that meets or just beats the earnings benchmark is denoted as 1, 0 otherwise.

Further results are presented in Panel C of Table 6. From Panel C, the coefficients for the $BENCH \times RM$ and $RM \times CGCI \times BENCH$ are statistically insignificant in the pre-PROCOMP period, yet are both statistically significant in the post-PROCOMP period. These results suggest that a firm with (without) better corporate governance in beating/meeting the earnings benchmark within 0.01 intervals in the post-PROCOMP period has higher (lower) subsequent accounting performance. The coefficients' difference of *DA* variable in the pre- and post-PROCOMP subsamples is statistically significant at the 1% level. This result again supports the conjecture that managerial accruals-based earnings management changed after the occurrence of the PROCOMP event. The coefficients' differences for the *CGCI*, $CGCI \times BENCH$, $RM \times CGCI$, and $RM \times CGCI \times BENCH$ in the pre- and post-PROCOMP subsamples are all statistically insignificant. Thus, the monitoring role of *CGCI* on a firm's subsequent accounting performance did not change after the occurrence of the PROCOMP event. It is likely that the results are robust with respect to the consideration of managerial incentives.

5.6 ALTERNATIVE RM MEASURE EXAMINATIONS

Note that Zang (2012) and Cohen and Zarowin (2010) only used production costs (*PROD*) and discretionary expenditures (*DISCEXP*) to construct their *RM* measure, i.e., they excluded the abnormal cash flows from operation (*CFO*) in their calculation of the *RM* measure. This study uses this alternative *RM* measure and reruns the equation. The results are presented as the "Excluded *CFO RM* Model" as shown in Panel D of Table 6. It is found that the coefficients of *RM* and $RM \times CCGI$ are negative and positive, respectively, and both statistically significant. The coefficient of $RM \times CGCI$ is again statistically significant in the post-PROCOMP period. Additionally, this study also measures a firm's

reversed fractional ranking of *RM* (between 0 and 1)[12] based on the firm/years and denoted as the "Percentage *RM* Model" as illustrated in Panel D. The coefficients of *PRM* and *PRM*×*CGCI* are again statistically significant. The untabulated results revealed the coefficients of *RM* and *RM*×*CGCI* are, as expected, both statistically significant in the post-PROCOMP period. Finally, we follow the study of Cohen and Zarowin (2010) and combine the *CFO* and *DISCEXP* components as an alternative *RM* measure, then rerun Equation (7). The results are denoted as the "Excluded *PROD RM*" model and reported in Panel D. It is found that the coefficients of *RM* and *RM*×*CGCI* are -0.056 (t=-3.13) and 0.006 (t=2.30), respectively, and statistically significant. The untabulated results also document that the coefficients of *RM* and *RM*×*CGCI* are approximately the same as the initial findings in the pre- and post PROCOMP tests. In sum, these further tests suggest that our results are robust with respect to the alternative measures of *RM*.

In summary, we present evidence which is consistent with the supposition that better corporate governance mitigates the negative relationship between firms' real earnings management on subsequent accounting performance. The above tests also reveal that the major findings are robust in the additional examinations.

6. CONCLUSION

This study examines the association between real earnings management and subsequent accounting performance. We also examine the moderating role of the internal corporate governance in distinguishing differential incentives embedded in managerial real earnings management behaviors, in turn, triggering differential subsequent accounting performance. It is reasonable to infer real earnings management accompanied with better corporate governance mitigates managerial opportunistic earning reporting and/or reveals managerial non-opportunistic signal (or size adjustment) decisions, which then results in a remarkable subsequent accounting performance. The empirical results, without considering the role of corporate governance, support the managerial opportunism hypothesis. It is also found that better corporate governance effectively mitigates the negative effect of real earnings management on subsequent accounting performance. This finding demonstrates the non-opportunistic explanation of real earnings management, yet, this is conditional on firms having better corporate governance.

The findings in this study are subject to a number of limitations and should be interpreted with caution. First, a lack of sufficient samples for some industries to enable them to estimate the regression coefficients of real earnings management may lead to

[12] A fractional ranking is the raw rank divided by the number of observations. For example, the fractional rankings of 1 and 10 among the numbers 1 to 10 are 0.1 and 1, respectively.

possible bias in the measurement of regression coefficients which, therefore, unavoidably limits the generalization of this study. The second limitation is the difficulty related to the identification and measurement of real earnings management. Though the measures used in this study are commonly employed in the recent real earnings management literature, the empirical findings may not extend to other real earnings management settings.

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